

AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in this application.

1-59. (canceled)

60. (currently amended) An interspinal prosthesis for implantation between a first spinous process and a second spinal process, the prosthesis comprising:

a first half comprising a coupling portion and a process portion, the coupling portion having a bore and configured for insertion into the interspinal space between the first spinous process and the second spinal process, the process portion being sized and configured to be placed on one side of the first and second spinous processes and being sized and configured to prevent its advancement into the interspinal space;

a second half comprising a coupling portion and a process portion, the coupling portion configured to be received within the bore of the coupling portion of the first half, the process portion being sized and configured to be placed on the other side of the first and second spinous processes and being sized and configured to prevent advancement into the interspinal space;

a locking mechanism for axially locking the first and second halves together after at least the coupling portion of the first half has been inserted into the interspinal space;

wherein the coupling portion of the first and second halves are sized and configured to be elastically deformable such that the coupling portion in the area between the first and second spinous

processes has an unstressed diameter and a deformed diameter, said deformed diameter being between about 10% to about 50% of the unstressed diameter; and

wherein one of the first half and the second half includes a plurality of radially extending cams and the other of the first half and the second half includes a plurality of grooves for receiving the plurality of cams when the coupling portion of the second half is received within the bore of the coupling portion of the first half so that rotation of the first half with respect to the second half is prevented.

61. (previously presented) The interspinal prosthesis of claim 60, the first and second halves comprising an assembled condition and an unassembled condition, the coupling portions of the first and second halves insertable into the interspinal space in the unassembled condition, wherein engaging the coupling portion of the first half with the coupling portion of the second half configures the halves in the assembled condition.

62. (withdrawn) The interspinal prosthesis of claim 60, wherein the locking mechanism comprises inner threads on the bore of the first half configured to mate with outer threads on the coupling portion of the second half such that the first and second halves can be screwed together.

63. (canceled)

64. (canceled)

65. (withdrawn – currently amended) The interspinal prosthesis of claim ~~60~~-64, wherein the locking mechanism comprises a nut and bolt combination, the shank of the bolt receivable in complementary bores in the coupling portions of the first and second halves.

66. (withdrawn) The interspinal prosthesis of claim 60, wherein the locking mechanism comprises a shoulder in the first half configured to receive a compressible prong on the second half.

67. (withdrawn) The interspinal prosthesis of claim 66, wherein the locking mechanism further comprises a pin configured to be received within a bore of the compressible prong to render the prong substantially incompressible.

68. (withdrawn) The interspinal prosthesis of claim 60, wherein the locking member comprises at least one wire configured to pass through a bore in the recess and projection.

69. (previously presented) The interspinal prosthesis of claim 60, wherein at least a portion of at least one of the first and second halves is made of an elastomeric material.

70. (canceled)

71. (previously presented) The interspinal prosthesis of claim 60, wherein at least a portion of at least one of the first and second halves further comprises a surface for enhancing bone ingrowth.

72. (previously presented) The interspinal prosthesis of claim 71, wherein the surface has a roughened profile.

73. (previously presented) The interspinal prosthesis of claim 71, wherein the surface comprises a hydroxyapatite coating.

74. (canceled)

75. (canceled)

76. (canceled)

77. (previously presented) The prosthesis of claim 60, wherein the coupling portion of the first half comprises a stop surface configured to axially engage the second half.

78. (previously presented) The prosthesis of claim 77, wherein stop surface is configured to separate the process portions of the first and second halves by an amount in the range of from about 2 mm to about 15 mm.

79. (previously presented) The prosthesis of claim 60, wherein the coupling portion of the first half comprises a cross-sectional dimension of from about 50 mm² to about 300 mm².

80. (previously presented) The prosthesis of claim 79, wherein the process portions of the first and second halves each have a cross sectional dimension of from about 70 mm² to about 500 mm².

81.-91 (canceled)